CONSTRUCTION PROGRAM.

In the semi-annual report of January 1, 1938, the status of completed work in the sewage treatment construction program involved in this case was stated to be on December 1, 1937, as follows:

TABLE 1.

COMPLETED WORK AS OF DECEMBER 1, 1937.

Calumet Project	$ 30,627,195.06
North Side Project	37,903,080.61
West Side Project	52,670,123.20
Southwest Side Project	17,650,351.97
West-Southwest Treatment Plant	9,229,521.61
Miscellaneous Plants and Sewers	632,961.20
Chicago River Controlling Works	1,511,112.23
Total	$150,224,345.88

The estimated cost of future essential sewage treatment construction, as of December 1, 1937, is as follows:

TABLE 2.

FUTURE WORK AFTER DECEMBER 1, 1937.

Calumet Project	$ 1,889,000.00
North Side Project	685,000.00
West Side Project	205,000.00
Southwest Side Project	3,484,000.00
West-Southwest Treatment Plant	19,265,000.00
Chicago River Controlling Works	1,380,000.00
Total	$26,908,000.00

During the six months between the date of the last report and the present report a considerable amount of construction work has been accomplished on the Calumet, the North Side, and the Southwest Side Sewage Treatment Projects and on the Chicago River Control Works.

Calumet Project. A contract for new sludge conveying equipment at the Calumet sludge disposal plant was awarded February 10, 1938 and the installation of this new equipment is 70 per cent completed.

Construction of the Calumet City sewer and of the small pumping station to pump the Calumet City sewage is now 100 per cent completed. Construction of the Blue Island Intercepting sewer is now 54 per cent completed. A contract for the construction of the connections to the Blue Island intercepting sewer was awarded June 16, 1938.

North Side Project. A contract for the construction of a sewer and pumping station in Niles was awarded December 30, 1937 and this work is now 81 per cent completed. A contract for the construction of siphons under the North Shore Channel was awarded January 6, 1938 and this work is now 39 per cent completed.

Southwest Side Project. Construction of contracts Section 6 and Section 9 of the Southwest Side intercepting sewer has been entirely completed.

The contract for the fabrication of pumps for the Racine Avenue Pumping Station was awarded January 27, 1938. The contract for the construction of the substructure of the Racine Avenue Pumping Station was awarded May 12, 1938.

The construction of contract Section 8 of the Upper Des Plaines sewer has been entirely completed. The construction of the small pumping station for the Upper Des Plaines sewer is now 74 per cent completed.

The only work remaining to be placed under contract in the Southwest Side project is the superstructure, mechanical equipment and electrical

equipment of the Racine Avenue Pumping Station. It is expected that this work will be let by August, 1938.

West-Southwest Treatment Plant. Construction was continued on the following contracts mentioned in the last semi-annual report to the Court: Aeration Tanks, Operating Galleries, Final Settling Tanks, etc., now 98 per cent completed; Electrical Work in connection with Aeration Tanks, etc., now 95 per cent completed; Erection of Machinery and Auxiliary Equipment, now 95 per cent completed; Electrical Work in the Pumping Station, now 47 per cent completed; Main Influent and Effluent Conduits, now 97 per cent completed; Electrical Work in connection with conduits, now 83 per cent completed; Preliminary Settling Tanks, now 96 per cent completed; Structural Steel of the Incineration plant, now 100 per cent completed; Substructure of the Incineration plant, now 100 per cent completed; Superstructure of the Incineration plant, now 87 per cent completed; and Electrical Work in connection with the Incineration plant, now 8 per cent completed.

A contract for Piping and Miscellaneous Equipment in the Pump and Blower House was awarded December 23, 1937 and this work is now 37 per cent completed. The contract for Piping and Miscellaneous Equipment in the Incineration plant was awarded May 17, 1938. A contract for the construction of Sludge Concentration Tanks and Miscellaneous Work was awarded June 16, 1938.

The fabrication of the following equipment was continued: Steam Turbine driven Pumping Units,

now 99 per cent completed; Steam Turbine driven Blower Units, now 98 per cent completed; Sludge Removal Mechanisms, now 99 per cent completed; Venturi Meters, now 99 per cent completed; Meters, Valves and Sluice Gates in connection with Effluent Conduits, now 96 per cent completed; Steam Turbine driven Generator Units, now 99 per cent completed; Transformers, now 93 per cent completed; Boiler Feed Water Heaters, now 99 per cent completed; Boilers and Settings, now 95 per cent completed; Heat Exchangers, now 99 per cent completed; Preliminary Tank Mechanism, now 94 per cent completed; Vacuum Filters, now 91 per cent completed; Sludge and coal conveying equipment, now 76 per cent completed; Sludge drying equipment, now 91 per cent completed; Precipitators, now 90 per cent completed; and Ash Handling Equipment, now 2 per cent completed.

At the present time, 95 per cent of the 400 MGD West-Southwest Sewage Treatment Plant has been placed under contract and 76 per cent of the total plant completed.

Control Works Chicago River. The contractor for construction of the Lock, Guide Walls, etc., comprising about 75 per cent of the entire Control Works project, is now approximately 92 per cent completed. The contract for Electrical Work in connection with the Lock is now 68 per cent completed. A contract for the construction of the Cross Walls connecting the Lock with the shore and for the Control Gates was awarded March 16, 1938 and the work is now 40 per cent completed. It is expected that these three contracts will be completed before December, 1938.

Financial. The financial condition of The Sanitary District of Chicago has changed little since the time of the last semi-annual report to the Court. The local tax situation has not improved. The taxes collected and turned over to the Sanitary District for corporate purposes and bond service since the time of the last report to the Court amounted to $7,848,620.87. The bonds of the Sanitary District now outstanding amount to $124,992,890. On July 1, 1938 some $4,128,000 of these bonds will be redeemed, leaving $120,864,890 then outstanding. The constitutional debt limit of The Sanitary District of Chicago, which includes bonds and other obligations, based on the 1937 assessed valuation of property, is $122,861,672.

Progress of Work. The total work accomplished by The Sanitary District of Chicago in the construction of sewage treatment works during the period from December 1, 1937 (the date of the summaries for the last report) to June 1, 1938 (the date of the summaries for this report) as measured by construction expenditures was, as follows:

TABLE 3.

Calumet Project	$ 615,623.12
North Side Project	210,666.29
West Side Project	53,863.31
Southwest Side Project	527,973.96
West-Southwest Treatment Plant	2,322,095.63
Chicago River Controlling Works	453,787.50
Total	$4,184,009.81

In addition to the amounts shown in Table 3, approximately $700,000 had been earned by contractors up to June 1, 1938, on the various items of construction work, but had not been paid, being retained by

the Sanitary District as reserved percentage until the final completion of the contracts.

By adding the various items indicated in Table 3 to corresponding items in Table 1, the completed portion of the sewage treatment construction program on June 1, 1938, was as follows:

TABLE 4.

COMPLETED WORK AS OF JUNE 1, 1938

Calumet Project	$ 31,242,818.18
North Side Project	38,113,746.90
West Side Project	52,723,986.51
Southwest Side Project	18,178,325.93
West-Southwest Treatment Plant	11,551,617.24
Miscellaneous Plants and Sewers	632,961.20
Chicago River Controlling Works	1,964,899.73
Total	$154,408,355.69

The estimated cost of future essential sewage treatment construction, as of June 1, 1938, is as follows:

TABLE 5.

FUTURE WORK AFTER JUNE 1, 1938.

Calumet Project	$ 1,281,000.00
North Side Project	480,000.00
West Side Project	200,000.00
Southwest Side Project	2,760,000.00
West-Southwest Treatment Plant	16,696,000.00
Chicago River Controlling Works	926,000.00
Total	$22,343,000.00

Funds remaining unexpended from the amounts obtained under the agreement of September 21, 1935 with the Federal Emergency Administration of Public Works to the extent of $8,683,000 are available and will be used for this future work.

SEWAGE TREATMENT.

The population of The Sanitary District of Chicago, as of June 1, 1938, is about 4,632,000, according to estimates made from the figures of the 1930 census. The industrial wastes in the Sanitary District are assumed to be equivalent to the sewage of 1,843,000 additional persons. Hence, the total population and industrial wastes equivalent amount to 6,475,000. This figure includes the Corn Products wastes, which would have been equivalent to the sewage of 423,000 persons if no recovery had been accomplished. These wastes have been greatly reduced, as a result of certain rearrangements in the factory processes resulting from research initiated by the Sanitary District.

The June 1, 1938 total population, and industrial waste equivalent, as above indicated, are estimated as 6,475,000. Up to date, the Sanitary District has assumed that so-called complete sewage treatment could produce an annual average of 85 per cent purification. Hence, so-called complete treatment for the total June 1, 1938 population and industrial wastes equivalent would equal the 100 per cent treatment of the sewage of 5,504,000, which is 85 per cent of 6,475,000.

The expenditures for sewage treatment have been indicated in Tables 1, 3, and 4. The amounts of actual sewage treatment in operation on December 24, 1937 (as of the time of the last report to the Supreme Court) and at the present time are shown in Tables 6 and 7, following:

TABLE 6.

ACTUAL SEWAGE TREATMENT IN OPERATION AS OF DECEMBER 24, 1937.

Treatment Works	Population Equivalent	Percentage Treatment	Treatment 100 Per Cent Basis
Calumet	335,000	85	285,000
North Side	1,251,000	85	1,063,000
West Side (Sedimentation)	1,633,000	33⅓	544,000
Miscellaneous (Morton Grove, Glenview, Northbrook)	8,000	85	7,000
Corn Products (Reduction)	393,000		359,000
Total	3,620,000		2,258,000

TABLE 7.

ACTUAL SEWAGE TREATMENT IN OPERATION AS OF JUNE 25, 1938.

Treatment Works	Population Equivalent	Percentage Treatment	Treatment 100 Per Cent Basis
Calumet	362,000	85	308,000
North Side	1,268,000	85	1,078,000
West Side (Sedimentation)	1,644,000	33⅓	548,000
Miscellaneous (Morton Grove, Glenview, Northbrook)	8,000	85	7,000
Corn Products (Reduction)	423,000		387,000
Total	3,705,000		2,328,000

The extent of the operation of sewage treatment plants at the present time is equal to the 100 per cent treatment of the sewage of 2,328,000 out of 5,504,000 persons, which would be the present possible 100 per cent treatment if the sewage of the total population and industrial wastes equivalent of 6,475,000 were being treated. This indicates the actual treatment of approximately 42.2 per cent of the total sewage within the Sanitary District.

When the West-Southwest Sewage Treatment Plant is placed in service (probably in the early spring of 1939) the sewage of 1,266,000 additional

people and trade wastes equivalent to the sewage of 1,210,000 people, will be treated. The treatment of the sewage of this additional 2,476,000 population and equivalent to the extent of 85 per cent will have the effect of increasing the over-all treatment percentage from the present 42.2 per cent to 80 per cent of the total sewage within the Sanitary District. The addition of complete treatment facilities to the West Side Sewage Treatment Works will have the effect of increasing this percentage to 96 per cent.

DIVERSION OF WATER.

The net diversion of water from Lake Michigan, during the calendar year 1937 averaged 4,989 cubic feet per second. The domestic pumpage of the Chicago metropolitan area during this period averaged 1,665 cubic feet per second the inflow from the Des Plaines River averaged 23 cubic feet per second; and the total flow from the Main Channel at Lockport averaged 6,677 cubic feet per second.

Diversion of water from Lake Michigan by The Sanitary District of Chicago since July 1, 1930, has been made in accordance with a Permit from the Secretary of War, dated June 26, 1930, which authorized the diversion of water as specified in the Decree of the Supreme Court, handed down April 21, 1930. This limited the net diversion to an annual average of not more than 6,500 cubic feet per second up to December 31, 1935, and thereafter limits the net diversion to an annual average of not more than 5,000 cubic feet per second up to December 31, 1938. The average monthly diversion, as made under this Permit from January 1 to June 20, 1938, is indicated in the table following:

Month 1938	Total Flow from Main Channel at Lockport C.F.S.	Inflow from Des Plaines River C.F.S.	Domestic Pumpage Chicago Metropolitan Area C.F.S.	Net Diversion from Lake Michigan Watershed C.F.S.
January	6408	20	1589	4799
February ...	7422	63	1554	5805
March	7607	25	1534	6048
April	7686	22	1529	6135
May	6311	13	1563	4735
June 1 to 20.	6645	10	1600	5035
Average	7013	26	1561	5426

The net diversion will be reduced to 1500 cubic feet per second, annual average, after December 31, 1938.

All of which is respectfully submitted,

THE SANITARY DISTRICT OF CHICAGO,

By ROSS A. WOODHULL,
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Chief Engineer.

ERNST BUEHLER,
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Attest:

JAMES J. SULLIVAN,
Clerk.